

WORLD METEOROLOGICAL ORGANIZATION

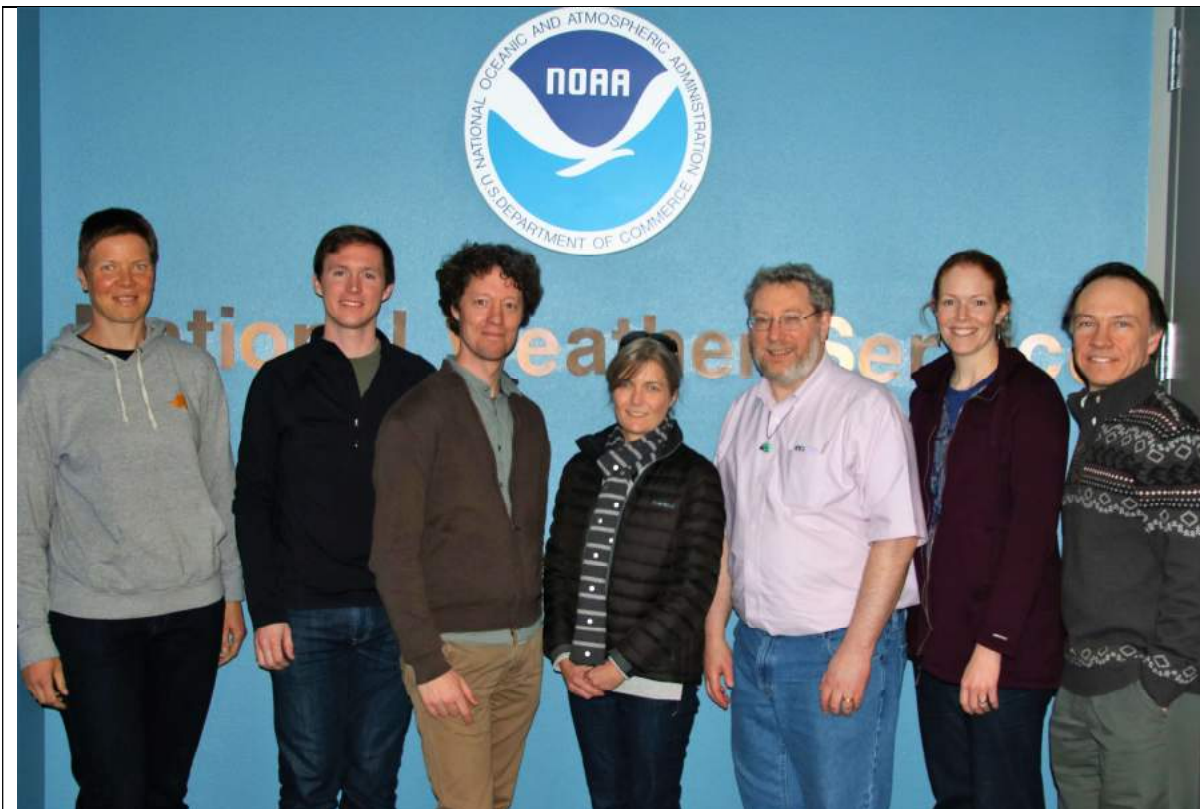
**World Weather Research Program (WWRP)
Polar Prediction Project (PPP)
Societal and Economic Research and
Applications (SERA) Meeting**

UAF, Alaska, Fairbanks, USA (5-9 April 2017)

WWRP-PPP-SERA-Meeting
3-report
(Finalised 12 June 2017)

Report summarising the
Third PPP-SERA Meeting

This report summarizes the items discussed and progress made during the third annual meeting of the Societal and Economic Research and Applications (SERA) Subcommittee of the Polar Prediction Project (PPP), coordinated and managed through the World Weather Research Programme (WWRP) of the World Meteorological Organization (WMO). The meeting was held at the University of Alaska Fairbanks (UAF) in Fairbanks, Alaska, from April 5 to 9, 2017. The meeting was hosted and organized by Rick Thoman (NOAA) at UAF, with logistical and technical support by the Alaska Center for Climate Assessment and Policy (ACCAP). PPP-SERA co-chairs: Daniela Liggett, Machiel Lamers, and Jackie Dawson (absent). A list of participants can be found in Appendix A.



From left to right: Daniela Liggett (co-chair), Winfried Hoke, Machiel Lamers (co-chair), Emma Stewart, Rick Thoman, Gita Ljubicic, and David Atkinson. Not present: Brian Mills, Maaike Knol, Jackie Dawson (co-chair)

Organisation and highlights of the meeting

T. Scott Rupp, Deputy Director of the International Arctic Research Center, officially opened the meeting at 09:00 AKDT Wednesday 05 April. Sarah Trainor, Director of the Alaska Center for Climate Assessment and Policy (ACCAP), provided further welcoming words. Rick Thoman provided an overview of the organisational framework and support for the meeting.

Specific objectives of the meeting included:

1. Provide an update on the PPP, YOPP, and related WMO events and opportunities;
2. Finalise the Scoping Document in order to submit for external review;
3. Plan and begin joint publication(s) based on the Scoping Document and other projects;
4. Revisit the draft Action Plan and timeline, identifying and confirming key activities and milestones for PPP and YOPP, and the resources or inputs necessary to achieve them;
5. Discuss and plan joint grant proposal(s); and,
6. Prepare and submit a report to WMO on the results of the meeting and recommendations for next steps.

The meeting was built around the completion of the Scoping Document, tentatively titled *Navigating Weather, Water, Ice and Climate [WWIC] Information for Safe Polar Mobilities*. Therefore, the agenda of the meeting was modified as required, as sections of the document were completed and distributed for review among the workshop participants. Additional activities during the meeting included review and refinement of the PPP-SERA action plan, as well as brainstorming next steps and preliminary work on publications based on the Scoping Document. Members provided updates of their PPP-SERA related activities. There was also a brief discussion of possibilities for the location of the 2018 subcommittee meeting.

Other activities were scheduled during the course of the meeting to broaden the committee's knowledge on Alaska-specific topics. Two invited presentations were provided by ACCAP and U.S. NOAA staff on SERA-related research and operational activities at the user-provider interface (see External Activities). Additional activities included tours of the NOAA/National Weather Service Forecast Office and a guided tour of the University of Alaska Fairbanks Museum of the North highlighting the cultural collections of the museum. The meeting was adjourned at 2:00pm AKDT on Sunday, April 09.

Update of PPP and PPP-SERA

Winfried Hoke gave an update on behalf of the PPP International Coordination Office (ICO), and addressed the following issues:

- The eighth PPP Steering Group meeting took place in February 2017, where Daniela Liggett was also attending and representing the SERA committee. The ICO and PPP Steering Group continue to strongly support the work of the PPP-SERA group.
- The ICO is in the process of implementing an online blog called 'Polar Prediction Matters' (original name: User Feedback Forum). Envisaged is a

blog available to the public, with blog posts (articles) appearing at least monthly. The articles should be less than 2000 words in length and tell the stories, experiences, needs and feedback in the context of weather, water and ice prediction. Contributions are invited from both users and providers of WWIC information (e.g. e.g. captains of ice-breaking ships, cruise tourism, and fishery operations; local community residents and hunters; sea ice or weather forecasters; among others). The style of the articles should be simple but also scientifically accurate: readers of the blog will have the opportunity to comment on articles to discuss relevant issues.

The PPP-SERA group was invited to participate in this project by reviewing the guideline document, connecting the ICO with potential authors, and being involved in possible follow-up interpretation and analysis of the input/results of the blog and its comments.

- The YOPP endorsement system has been online since October 2015. Since then, 66 projects of different regions, science disciplines and backgrounds have undergone the endorsement process. In the autumn of 2016, PPP-SERA worked together with the ICO to integrate social science components into the endorsement process, in relation to both user and provider aspects. Participants of the PPP-SERA group and other interested PIs are invited to seek endorsement for their projects.
- YOPP endorsements that have already been submitted were also discussed regarding their potential for PPP-SERA engagement and synergies. Also, the WMO sent out letters to national weather services officially inviting participation in the Special Observing Periods. A brief update was given to PPP-SERA, but most activities of the national services focus on physical science projects.
- The Core Phase of YOPP will be officially launched on 15 May 2017 at the WMO Headquarters, during the 69th Executive Council Meeting. WMO was involved in editing the brochure that was handed out to participants at the YOPP launch event. The PPP-SERA Scoping Document is in the process of review, and the final version is currently being prepared for release by the YOPP ICO.
- One activity of the ICO is outreach. In this context the planned Earth System Knowledge Platform (ESKP, a German Helmholtz platform) publication was announced. German projects involving knowledge transfer (including PPP and PPP-SERA) will be featured in a *Springer Briefs* issue.

Update on member activities

- Machiel Lamers gave a presentation on his project *SALIENSEAS: Enhancing the Saliency of Climate Services for marine mobility sectors in European Arctic*. This multi-disciplinary three-year project is already YOPP-endorsed and officially commences in July 2017. It aims to bring together social scientists, natural scientists, local stakeholders and providers of WWIC information, to “tailor [them] to key social, environmental and economic needs”. (Lamers, 2017)
- David Atkinson: See below under Members and Committee Decisions.
- For research activities of the other members refer to the PPP-SERA report 2016 (WMO 2016).

Scoping Document

As of the inaugural PPP-SERA meeting in Ottawa in 2015 (WMO, 2015) developing a Scoping Document was identified as an important priority to set the stage for SERA-related contributions to YOPP and beyond. The purpose of this report is twofold and involves:

- scoping how WWIC information is currently being used and produced in and for the Polar Regions, by whom, and for what reasons, and
- identifying, framing and articulating important areas of research related to the use and provision of environmental prediction services that could be prioritised and further developed given available capacity, resources, and interest during, and beyond, the YOPP.

At this 2017 meeting in Fairbanks, the priority was thus to finalize analysis and writing to complete the Scoping Document in time for the YOPP core phase launch on May 15, 2017. In order to achieve this, the group subdivided sections of the Scoping Document into work packages so that work proceeded in parallel among sub-groups or individuals. Sections describing users and providers were given in-depth review and underwent significant restructuring, and all other parts were reviewed and improved.

The near-final draft was then reviewed by the group as a whole. In order to expedite the completion process, the group identified more than a dozen individuals who are not part of the committee but who may be able to act as "friendly reviewers", based on their work and familiarity with diverse topics covered. The final draft of the Scoping Document was circulated to confirmed reviewers on April 10, 2017, and we received and incorporated their feedback by the end of April 2017. This enabled sufficient time to finalize the document, which was submitted to the ICO by XXX [insert date] in order to be available around the time of the YOPP launch event. It is anticipated that this will be available publicly online through the PPP website by XXX [insert date].

The primary sections of the Scoping Document are as follows (see Appendix B for a full Table of Contents):

- Weather, Water, Ice and Climate Information Providers
- Weather, Water, Ice and Climate Information Users
- The Provider-User Interface: Gaps, Priorities and a Research Agenda

Review of PPP SERA Action Plan

a) **Short-term** (by June 2017):

- Finalise the Scoping Document and publish it as a WMO document, similar to the PPP YOPP Implementation plan.
- Ensure that the Scoping Document is mentioned at the Launch Event of the YOPP Core phase on May 15, 2017 at the Executive Committee Meeting at WMO Headquarters.

- Develop a PPP-SERA poster that can be used to highlight and promote the focus of the group and used by all members at appropriate venues¹.
 - The selection of key themes of the Scoping Document and their synthesis into publications (journal articles) by the PPP-SERA group or selected members.
 - Expand the PPP-SERA web presence on the PPP website and plan next steps for increased visibility of PPP_SERA (action for the ICO).
 - Further develop the PPP-SERA research agenda, consult for feedback from broader research and user group networks, and raise awareness amongst our international networks to encourage broader contributions to PPP-SERA goals, within YOPP core phase and beyond.
- b) **Medium-term** (YOPP Core Phase, 2017 - 2019):
- Continue to facilitate expansion of the PPP-SERA research agenda by supporting endorsed projects (helping to identify potential funding opportunities or collaborators as appropriate).
 - Continue collaboration with the PPP Verification Task Group (lead: Barbara Casati) on mutually useful verification activities.
 - Concretise the concept and planning of the 'Weather and Society' workshop. Instead of developing an independent meeting, it was considered to have smaller events on an annual basis in conjunction with other conferences or meetings already planned, so as to reach a diverse audience and minimize costs. A dedicated session is already planned for the ICASS IX Conference (June 2017, Umeå, Sweden). Other upcoming meetings were also identified as potential venues for special sessions or side meetings. However, a dedicated conference at the end of the YOPP Core Phase (in 2020) could offer an opportunity to consolidate lessons learned from a transdisciplinary perspective, and is still being considered.
- c) Strengthen the exchange of information with information providers and forecasters in order to learn how communication, coordinated delivery, training for interpretation, etc., can be improved. The Scoping Document, '*Navigating Weather, Water, Ice and Climate Information for Safe Polar Mobilities*', addresses the need for more user-provider interface research, which would be an important starting point and the subcommittee is exploring a range of funding opportunities.
- d) **Long-term** (post 2019):
- Consider, refine, prepare and publicize PPP-SERA committee case studies.
 - A broad analysis of PPP-SERA-related research (synthesis of research undertaken under the PPP-SERA umbrella) should be aligned with the research agenda of the Scoping Document.
- e) **Continuous**
- Identify other potential committee members or support network members who could be included into the group, also considering

¹ Note that this has been done now. The poster will be presented at the New Zealand Antarctic Conference in Dunedin, New Zealand, in June 2017.

geographical balance. David Atkinson has been invited as an expert to the group as of the Fairbanks meeting. PPP-SERA recognises the importance of geographic and discipline diversity and is exploring the addition of experts in the Russian Arctic as well as in South America who work in the Antarctic context. The committee recognises the need for additional Antarctic focus, especially with regard to climate services. The committee will reach out to the larger community to help compliment the current membership expertise.

- Further raise the profile of PPP-SERA-related research and enhance connections with modelling and forecasting research.
- Facilitate PPP-SERA and physical science collaborations by providing templates of documentation needed for social science research.
- Develop focused collaborative projects within the committee, based on existing data and information (e.g. shipping in Arctic Canada, international surveys of sea ice information providers, remote community and urban mobilities, all in relation to how they use weather and sea ice information in support of making decisions) and new projects within our outside of PPP-SERA (e.g. the SALIENSEAS project). As well, continue to work on joint meetings and contributions at other conferences (e.g. ICASS IX in 2017, Arctic Change 2017, POLAR 2018), the next PPP-SERA group meeting, joint publications (already in progress), possible consideration of a joint proposal, and PPP-SERA members continue to encourage others to submit their relevant research projects for YOPP endorsement.
- Participate in YOPP meetings and continue having annual PPP-SERA meetings. The next PPP-SERA meeting in April 2018 is already in early planning phases, to be hosted by Machiel Lamers (co-chair) in Wageningen, Netherlands, 16-22 April 2018.
- Contribute to YOPP education and outreach activities, which goes in hand with capacity building. PPP-SERA offers to supply input and feedback to the PPP community.
- Contribute and collaborate in the planned user feedback forum of the PPP ('Polar Prediction Matters').
- Develop joint PPP-SERA committee projects to explore key case studies in greater depth (in progress).

Discussion of future publications

The Scoping Document has created an important overview of key issues, and an identification of a research agenda to address gaps. The PPP-SERA committee has also used this process to develop a more specific internal scope for future research. The two main themes throughout the document are the 'polar mobilities' and the 'user-provider interface'. These two themes are planned to represent the first two foundational and theoretical topics to emerge as joint publications. Case studies are planned to expand on theoretical findings and field-test them. Publications based on case studies are planned to integrate sector or regional analysis with the theoretical material. The journal articles anticipated to develop from this scoping research include:

Polar Mobilities: led by Daniela, Emma and Dave (with all as authors). This publication will describe polar mobilities and related issues in depth. Short case studies (vignettes), will illustrate the theory applied to key sector cases, in the style of boxes (as used in the Scoping Document).

User-Provider Interface: led by Machiel, Rick and Winfried (with all as authors). This publication will further analyse users, providers and their interconnections, and also anticipates using vignettes (see above).

Some possible case study papers include following topics: expedition cruising in the European Arctic, mobility-specific communities, WWIC indicators from Indigenous perspectives, mobilities of the Ross sea region, fishery and shipping in the European Arctic, shipping corridors in the Canadian Arctic, and possibly the regions Alaska, Russia, or the Antarctic Peninsula.

Further, a generic poster has been created to represent the research activities of the PPP-SERA committee at conferences and other workshops.

The analysis of the YOPP-endorsed projects is planned to serve as a source for research activities and collaboration.

Most of the research efforts and publications proposed above will likely be supported as in-kind contributions; however, external funding additional to the WMO funding will be sought and would be beneficial for the success of PPP-SERA.

Members, committee decisions and next steps

- David E. Atkinson was invited as an expert on North American provider- and userscape. Dr. Atkinson is Associate Professor in the Department of Geography at the University of Victoria, Victoria, British Columbia, Canada. He has worked extensively in the Canadian and Alaskan Arctic on physical and social science related questions. His recent work has focused on the intersection between user needs and weather and climate related forecast information, including marine interests in the Arctic and small remote communities in Alaska and the western Canadian Arctic. His work has demonstrated the importance of ocean and atmospheric variables that are not regularly provided by routine forecast services but are commonly required within specific Arctic user groups.
- Brian Mills (not attending this meeting) has taken the decision to step down from the group and the PPP-SERA subcommittee accepted his decision. The PPP-SERA committee wants to thank Brian Mills for the work in his important role during the initialisation of the committee and active engagement since then.

External Activities

Nathan Kettle with ACCAP provided the group with a working lunch overview of ACCAP's work. ACCAP is one of a group of Regional Integrated Sciences and Assessments (RISA) programs in the USA. RISA teams conduct interdisciplinary and regionally relevant research to inform resource management, planning and public policy, and to build the nation's capacity to prepare for and adapt to climate change. ACCAP partners with stakeholders in assessing community needs and vulnerabilities

and to create realistic community plans and climate adaptation strategies, including marine resources, sea ice, wildfire and Alaska Native culture across all of Alaska.

Ed Plumb (NOAA) provided the group with an overview of National Weather Service (NWS) activities in northern Alaska, during another lunch break. Mr. Plumb emphasized the evolving nature of NWS products and services, with an increasing importance of stakeholder engagement and agency responsiveness to their weather, water, ice and climate requirements in order to support stakeholder decisions.

Other activities of the meeting included a short visit to the University of Alaska's Museum of the North, including a guided tour, as well as a tour of the U.S. NOAA/National Weather Service Forecast Office and joint free-time activities (dinners).

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List of Abbreviations

ACCAP	Alaska Center for Climate Assessment and Policy
ESKP	Earth System Knowledge Platform (Germany)
ICO	International Coordination Office for PPP
NOAA	National Oceanic and Atmospheric Administration (USA)
NWS	National Weather Service (USA)
PI	Principal Investigator
PPP	Polar Prediction Project
RISA	Regional Integrated Sciences and Assessments
SERA	Societal and Economic Research and Applications
UAF	University of Alaska Fairbanks
WMO	World Meteorological Organisation
WWIC	Weather, water, ice and climate
WWRP	World Weather Research Programme (WMO)
YOPP	Year of Polar Prediction

Appendix A — Participants

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